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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/455,102	12/06/1999	MICHAEL PERSSON	AN05939P1-US	4651
7590 RALPH J MANCINI AKZO NOBEL INC INTELLECTUAL PROPERTY DEPARTMENT 7 LIVINGSTONE AVENUE DOBBS FERRY, NY 105223408			EXAMINER METZMAIER, DANIEL S	
			ART UNIT 1712	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			02/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

09/455,102

Applicant(s)

PERSSON ET AL.

Examiner

Daniel S. Metzmaier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13,23-32,58-62,66-68,70,71,98,99,101 and 102 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13,23-32,58-62,66-68,70,71,98,99,101 and 102 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/08/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-13, 23-32, 58-62, 66-68, 70-71, 98-99, and 101-102 remain in the application. Claims 14, 18-21, 33, 35-57, 64, 65, 72-97, 100 and 103-106 have been cancelled.

### ***Response to Amendment***

1. Applicants filed a Request for Continued Examination (RCE) on November 28, 2006, which was an improper filing because said filing was after a Non-final Office Action. The RCE has been placed in the file but has no effect. Thus, the instant Action is deemed a Final Action.
2. The Change of Address filed on January 26, 2007 is improper since the attorney signing said filing has not been given power of attorney in the record.

### ***Information Disclosure Statement***

3. The information disclosure statement filed November 8, 2006 fails to comply with 37 CFR 1.97(d) because it lacks the fee set forth in 37 CFR 1.17(p). It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim interpretation***

4. The claims require mixing (i) an aqueous solution of alkali metal silicate with (ii) an aqueous phase of silica-based material having a pH of 11 or less and (iii) a metal salt other than an aluminum salt. Applicants (instant page 3, lines 19-28) provide examples of said aqueous phase of silica-based material having a pH of 11 or less, which include among others clays of smectite form and colloidal aluminum-silicate (e.g., clay).

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The term microgel has not been specifically defined in the specification and therefore takes its plain meaning in the art, which would be a polysilicate gel of micron or submicron size. It is noted that the claims do not define any particle size of the gel material.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-2, 4-9, 11-13, 23-24, 26-27, 29, 31-32, 58-61, 66-67, and 70-71 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Iler, US 2,727,008. Iler (example 1) discloses (ii) treating sodium silicate solution having a  $\text{SiO}_2:\text{M}_2\text{O}$ , where M is alkali metal, 3.25:1, with an ion-

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exchange resins in the hydrogen form. Said treatment would have resulted in a silica material having a pH of 11 or less. Said treatment was followed by alkalizing treatment of said effluent with sodium silicate. Said ion-exchange treatment and alkalization treatment were repeated. Each treatment with the addition of the sodium silicate increases the concentration, which was characterized at 5.8, 8.0, and 10.0 % by weight. Said products were tested by titrating between pH of 4 to 9 with sodium hydroxide (a metal salt other than aluminum, see instant claim 2).

The Iler products are characterized as (column 5, lines 8-14) having a particle size of 3-10 millimicrons and a surface area in excess of 1000 m<sup>2</sup>/g (column 6, lines 17-23).

It is noted that sodium silicate is a sodium salt of silicic acid and therefore reads on the instant claims (see claim 1 limitation, "a metal salt other than an aluminum salt). Claims 2 and 5 read on the titration with sodium hydroxide.

Claims 23-24 are drafted in product-by-process format and appear to read the same products of Iler.

The microgel structure claimed would have been inherent to the Iler compositions at least to some extent based on the Iler characterization (column 2, lines 56 et seq) of the initial sol as having at least some aggregate formation in the form of aggregates, chains or networks of chains.

To the extent Iler differs from the claims in the characterization of the materials as a polysilicate microgel, applicants do not define the term polysilicate microgel as have a specific meaning or an art recognized meaning. Since the materials are made

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by the same or substantially the same process and have particle size and surface area parameters that read on the claimed product, it is reasonable to conclude that the products are microgels. To the extent said gel structure differs for the claims, some variation in the process limitations of concentration and pH is within the level of one having ordinary skill in the art at the time of applicants' invention.

8. Claims 1, 4-6, 8-9, 11-12, 23-24, 26-27, 29-30, 32, 58-62, 66-68, 70-71, 98-99 and 101-102 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kaliski, US 5,116,418. Kaliski (examples) discloses mixing very fine particle kaolin clay slurries (60 or 70 wt% solids, which are aluminosilicates, i.e., silica-based material having a pH of 11 or less, instant claimed component (ii)) with aqueous sodium silicate (instant claimed component (i)) and calcium chloride (instant component (iii)) and sodium aluminates to form complex functional microgels. The pH values and the  $\text{SiO}_2\text{:M}_2\text{O}$  ratio of the components would have been inherent to those available.

To the extent Kaliski differs from the specific pH or the  $\text{SiO}_2\text{:M}_2\text{O}$  ratio of the specific components some variation would have been expected as a known rate determining variable as taught by Kaliski at column 11, lines 11-50. Furthermore, claim 1 sets forth the use of ammonium silicates as well as alkali metal silicates, a ratio of silicates to aluminates and zincates of 1:10 to 10:1, and concentrations of silicates of 0.1 to 2 weight % with as little as 0.5 weight % polyvalent metal salts, i.e., calcium chloride. Said ranges would overlap the 3:1 to 20:1 ratio claimed. Said ratio has not been shown to be critical to the invention.

### ***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 2-13, 23-32, 58-63, 66-68, 70-71, 98, 99, 101 and 102 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 7,169,261. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims encompass and/or substantially overlap the '261 claims. The instant claims require a metal salt other than aluminum. This reads on the addition of sodium silicate, which is a sodium salt of silicic acid. Furthermore and as shown in example 2, which the claims read on, the sols may further be alkalized by the addition of sodium hydroxide (a metal salt other than aluminum, see instant claim 2). The S-value is the degree of aggregation or microgel formation. See also column 2, lines 33 et seq, of '261.

Furthermore, the claims are generic to and/or contain boron that is added in the form of an alkali metal borate as disclosed at column 5, line 62, to column 6, line 7.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Response to Arguments***

11. Applicant's arguments filed November 8, 2006 have been fully considered but they are not persuasive.

12. Applicants (page 9 of the response) assert the Iler reference fails to disclose the addition of a metal salt as now claimed. This has not been deemed persuasive since Iler specifically sets forth the addition of sodium hydroxide, which reads on the claimed salt species listed.

13. Applicants (page 10) assert the Iler reference discloses the addition of sodium hydroxide to characterize the sols particles rather than during the preparation of the sol. This has not been deemed persuasive since the claims do not specifically define when the salt is added to the process and requires mere mixing of the components in a non-specified order.

14. Applicants (page 10) assert the Iler reference does not set forth the silica sols in the form of a stable polysilicate microgel and includes the step of removing alkali metal ions. This has not been deemed persuasive since applicants assert the sols form gels to some degree, the sols are disclosed as having a particle size reading on the claims as microgels, and applicants have not distinguished the compositions based on stability.



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Furthermore, the Iler sols are made in the manner claimed and would be expected to result in the same or substantially the same products as those resulting from the claimed process products.

15. Applicants (pages 10 and 11) assert the Iler sols are not microgels as claimed in claim 23. This has not been deemed persuasive since Iler specifically teaches the adjustment of the pH within the range of 4 to 9. This range clearly reads on the claimed range of 6.5 to 9.

Applicants (page 11) assert that while the Iler reference discloses the  $\text{SiO}_2\text{:M}_2\text{O}$  ratio in the alkali silicate, Iler is silent regarding the said ratio for the polysilicate microgel. The claimed range of  $\text{SiO}_2\text{:M}_2\text{O}$  ratio is 3 to 20. Iler discloses titrating a composition with a low ratio to an increasing ratio to determine the surface area. Iler further teaches (example 2) higher pH compositions, e.g., pH 8.2, that are further titrated. Applicants do not quantify the salt content added. Clearly Iler teaches compositions having a high  $\text{SiO}_2\text{:M}_2\text{O}$  ratio, which is lowered by the addition of sodium hydroxide and would have been expected to fall within the claimed range for the sols having a low initial pH and/or those of example 2 at pH of 8.2.

Furthermore, alkali metal hydroxides are common pH modifiers. The pH is clearly a result-effective variable, i.e., a variable, which achieves a recognized result. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ an alkali metal hydroxide for the advantage of controlling the pH.

16. Applicants (page 12) assert the Kaliski reference is silent regarding the silica-based products claimed, i.e., smectite-type clays rather than Kaolinite. This has not

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been deemed persuasive since Kaliski (column 17, line 56, to column 18, line 23, particularly column 18, line 7) discloses the montmorillonite or bentonite (i.e., smectite clays) as an alternative to the Kaolin clay products (column 17, lines 67-68).

17. Applicants (page 12) assert Kaliski is silent regarding the pH of 6.5 to 11 and the  $\text{SiO}_2\text{:M}_2\text{O}$  ratio of 3 to 20. Regarding the pH, please see Kaliski at column 11, lines 11-13. See also Kaliski at claim 1, which sets forth the use of ammonium silicates as well as alkali metal silicates, a ratio of silicates to aluminates and zincates of 1:10 to 10:1, and concentrations of silicates of 0.1 to 2 weight % with as little as 0.5 weight % polyvalent metal salts, i.e., calcium chloride. Said ranges would overlap the 3:1 to 20:1 ratio claimed. Said ratio has not been shown to be critical to the invention.

18. The provisional ODP rejection has been replaced with the actual ODP rejection. Applicants state the claims are distinct but do not point out how said claims are patentably distinct. Perrson et al, US 7,169,261, characterizes said materials as microgels (see at least column 4, line 52).


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel S. Metzmaier  
Primary Examiner  
Art Unit 1712

DSM